

REMARKS

The present response cancels claim 18 without prejudice or disclaimer as to the subject matter recited therein. In addition, claim 16 has been amended and claims 24-27 have been added in conformity with the following remarks. Claims 16-17 and 24-27 are pending in the captioned case.

Section 102 Rejection

Claims 16-17 were rejection under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,091,130 to Oyamatsu et al. (hereinafter "Oyamatsu"). The standard for "anticipation" is one of fairly strict identity. A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art of reference. *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); MPEP 2131. Furthermore, anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, as arranged in the claim. *W.L. Gore & Assocs. V. Garlock*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983). Using these standards, Applicants submit the cited art fails to disclose each and every element of the currently pending claims, some distinctive features of which are set forth in more detail below.

Oyamatsu does not teach or suggest an upper layer adjacent to an outer edge of a semiconductor topography having an average thickness approximately 5% to approximately 30% less than an average thickness of the upper layer near a center of the semiconductor topography. Present claim 16 has been amended to contain the subject matter of canceled claim 18. Specifically, claim 16 recites an upper layer, such as layer 22 of Fig. 4, after a selective removal of resist 26, a portion 28 of upper layer 22 is exposed as shown in Fig. 6. Exposing portion 28 of upper layer 22 allows removal 30 to reduce the average thickness of the upper layer in a region adjacent an outer edge of the semiconductor topography, shown in Figs. 8-9.

It is important that not all of upper layer 22 near the outer edge be removed. Through empirical studies, as described in the present specification, only a portion between 5% and 30% of the upper region near the outer edge should be removed to allow optimal subsequent polishing. As described in the present specification, the polishing rate near the center of the semiconductor topography is greater than near the edge. If a portion of the edge region is removed prior to polishing, a planar surface across the entire topography occurs when the polishing step is performed and completed as shown in Fig. 10. Regardless of the thickness of the upper layer, either deposited or grown, it is determined that approximately 5% to 30% lessening of the upper layer thickness near the outer edge will counteract and balance the lower removal or polish rate at the outer edge during the subsequent polish operation. If more than 30% is removed, the outer edge will be over-polished and if less than 5% is removed, the outer edge will be under-polished. Therefore, there is sound reasoning for defining the critical range at which the outer edge thickness should be removed relative to the center of the topography. The Examiner need only look at the originally-filed specification for such reasoning.

Contrary to claim 16, Oyamatsu makes no mention whatsoever of how much of the outer edge region of upper layer 24 is removed (Oyamatsu -- Fig. 5). In fact, the only reference to the removal at the outer edge in Oyamatsu appears to indicate that at the extreme edge, all of the upper layer 24 is removed so that the polishing pad will bear against a polish stop layer 22 (Oyamatsu -- col. 2, lines 25-49). The particular teaching of Oyamatsu is that the polishing rate near the edges of a wafer are greater than near the wafer center (Oyamatsu -- Fig. 3). Nowhere is Oyamatsu is there any mention that a polishing step will stop at a particular time or that a particular amount of upper layer 24 will remain at the outer edge. Instead, one skilled in the art would know upon reading Oyamatsu that given the much higher polishing rate near the edges, all of the edge region will be removed at the extreme lateral edges once the polishing pad bears against polish stop layer 22. Therefore, instead of Oyamatsu describing a range either within or close to the presently claimed range, Oyamatsu makes no mention of any range whatsoever. In order to sustain a *prima facie* case of obviousness, the claimed range must "overlap or lie inside ranges disclosed by the prior art." *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

Contrary to the Examiner's contentions, the issue is not whether the claimed ranges are obvious in light of the referenced ranges, but whether or not any ranges are referenced. In the present case, there are no referenced ranges in Oyamatsu and certainly one skilled in the art would not be expected to take completely undisclosed ranges in Oyamatsu and tender the claimed ranges obvious through routine experimentation or optimization. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775 (Fed. Cir. 1985). The Examiner cites *In re Aller*, 105 USPQ 233, 255 (CCPA 1955) for the general proposition that Applicant has the burden of proving criticality of certain ranges that were claimed "where the general conditions of [the] claim are disclosed in the prior art . . ." Upon a closer reading of the multiple cases cited by the Examiner, including *In re Aller*, the prior art must, at a minimum, make some suggestion of a range that may or may not be subsumed by the patent claims. However, in this case, there is no range suggestion whatsoever in Oyamatsu.

Again, as recited in *In re Woodruff*, 919 F.2d 1575 (Fed. Cir. 1990), to rebut a *prima facie* case of obviousness lodged by an Examiner, "the Applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range." (emphasis added.) Nowhere in any of the prior art is there any mention of range. Therefore, Applicants know of no reason why criticality must be shown between the claimed range and a nonexistent prior art range. However, if criticality is needed the Examiner should look to the originally filed specification to know that a critical range of outer edge removal is needed in order to yield a more planar subsequent polishing surface. That critical range is specified in present claim 16 and is neither taught nor suggested in Oyamatsu.

For at least the reasons set forth above, Applicants assert that independent claim 16 and claims dependent therefrom are not anticipated by the cited art. Accordingly, Applicants respectfully request removal of this rejection.

Section 103 Rejection

Claim 18 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Oyamatsu. Claim 18 has been canceled rendering rejection thereto moot. However, a discussion of the patentable distinctions between Oyamatsu and the subject matter of claim 18 are discussed above related to amended claim 16.

Added Claims

Dependent claims 24-27 are added herein. Applicants assert that dependent claims 24-27 are patentably distinct for at least the same reasons as their base claim 16. Accordingly, Applicants respectfully request approval of added claims 24-27.

CONCLUSION

The present amendment and response is believed to be a complete response to the issues raised in the Office Action mailed April 28, 2006. In view of the remarks herein, Applicants assert that pending claims 16-17 and 24-27 are in condition for allowance. If the Examiner has any questions, comments or suggestions, the undersigned attorney earnestly requests a telephone conference.

No fees are required for filing this amendment; however, the Commissioner is authorized to charge any additional fees which may be required, or credit any overpayment, to Daffer McDaniel, LLP Deposit Account No. 50-3268/5298-04301.

Respectfully submitted,
/Kevin L. Daffer/
Kevin L. Daffer
Reg. No. 34,146
Attorney for Applicant(s)

Customer No. 35617
Date: July 28, 2006